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(54) Method of preparing an item to be mailed and system for carrying out that method.

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Description

Method of preparing an item to be mailed and system for carrying out that method.

The invention relates to a method according to the introductory part of claim 1.

Such a method is known from GB-A-2,202,660. In the method known from that publication the detected instructions for printing markings for controlling the mail preparation stations are removed and replaced by instructions for printing identification markings. The control signals are stored in association with an identification code which corresponds with the printed identification code. The instructions for controlling the mail preparation stations may comprise instructions for controlling a burster, an insert feed station, an address printer and a postage meter.

When, for instance in the mail room, the main documents are fed to the mail preparation line, they are passed along a scanner which periodically reads the identification code provided on them. Depending on which identification code is read, periodically the associated, stored control signals are fed to the mail preparation stations.

Although markings which form an identification code may be smaller than markings which themselves comprise the instructions for controlling the mail preparation stations, the presence of such markings nevertheless constitutes a disturbing element on the main document, because they are not relevant for the user of the main document and because the space where the markings are provided cannot be used for any other printing.

A further drawback of using markings is that the mail preparation line requires a scanner for reading the markings.

A method in which the user will find the presence of markings less disturbing is set forth in EP-A-0,265,192, where the identification markings are so designed, dimensioned and positioned that they will not be noticed by the user.

It is an object of the invention to provide a method of preparing items to be mailed with which the above described drawbacks can be avoided.

A further object of the invention is to change as little as possible the methods known and used heretofore, such as described above, so as to allow those methods and the apparatus used in them to be adapted through a minimum of steps, in such a way that the problems described hereinabove will be avoided

This is accomplished by carrying out the method of the above described type in accordance with the characterizing part of claim 1.

This makes it possible for the mail preparation stations to be controlled independently of the printing and subs quent reading of markings, the drawbacks discussed hereinabove thus being avoided. The mail preparation stations are controlled more directly in that the output is directly converted into control signals for the corresponding mail preparation stations, without the detour via printing and reading. Surprisingly, therefore, it has turned out to be possible to avoid the drawbacks discussed by choosing a shorter route in the existing methods, which also brings with it the advantage that those known methods can be adapted without any major changes. Furthermore, the use of this inventive, shorter route eliminates a source of possible disturbances, since it rules out disturbances owing to the incorrect or incomplete printing and/or reading of any printed markings.

An additional advantage of the invention is that a considerably smaller number of sets of instructions each belonging to a main document need to be stored at the same time.

Preferably, periodically a next main document is printed after the preceding main document has been fed to the intended mail preparation station, so that at most the instructions belonging to one main document need to be stored.

The detected instructions, which are converted into control signals, may be removed from the output fed to the printer. The removed instructions are then replaced with printing instructions, for instance to leave at least one line or a part thereof blank, the initial addition of the instructions to the output may advantageously be accomplished in the space of the first line of a document, since this line is usually blank. Instead of removing the instructions for printing processing instructions, it is also possible to process the detected instructions in such a way that they are not recognized by the printer as printing instructions.

In virtue of the fact that in principle it is possible to maintain the original output method where the instructions for controlling at least one mail preparation station are fed in the form of printing instructions for printing the markings comprising coded information for controlling a mail preparation station, it is advantageously possible, and in accordance with a further embodiment of the method according to the invention, for the detected printing instructions for printing the markings to be partly removed or processed into instructions which effect no printing and to be partly passed on to the printer in unmodified form for printing one or more markings. This procedure is particularly advantageous when the main documents are to be removed from the mail preparation line temporarily, for instance for a special check, or to be signed or the like.

As noted, preferably the basic system of the existing mail preparation lines is changed as little as possible. In this connection it is preferable, and in accordance with a further embodiment of the inv ntion, for the output from the data processor to be fed to an interface, which from the output received generates separate information streams to the printer and the

various mail preparation stations. Further control is possible when, in accordance with a further elaboration of the invention, it is arranged for the interface to be further fed with signals coming from the printer and the mail preparation stations, which permits the control of the printer and the stations mentioned and the output from the data processor to be regulated depending on the course of the processes in one or more stations. The process can be further automated and controlled when signals are fed to the interface which come from further apparatus, such as means for monitoring technical failure, completeness or packet thickness, which influence the progress of the process in the mail preparation line.

A further advantage of the use of an interface is that at the interface additional information can be added, which can be coupled to the output. Thus at the interface further preparation instructions can be added to the output coming from the data processor.

The invention can also be embodied in a system according to claim 8.

Preferably the interface is provided with further input means for instructions. It will be clear that the interface may be accommodated in the housing of the printer or in the same housing as the data processor and that the printer may be accommodated in the mail preparation line.

The mail preparation method and system according to the invention will now be further explained and illustrated with reference to the drawings, schematically showing some embodiments, in which:

Fig. 1 shows a first embodiment of a mail preparation system according to the invention; and

Fig. 2 shows a second embodiment.

In Fig. 1 the block designated by reference numeral 1 represents a data processor in which the information for preparing and assembling a plurality of documents is stored. The arrows between the blocks each represent a line for passing on information.

Linked to the data processor 1 is an interface 2 which is arranged upstream of a mail preparation line 3 comprising, in the present embodiment of the invention, a printer 4, a burster 5, a collecting station 6, an insert feed station 7, a folding station 8, an inserter station 9 and a postage meter 10. It is stressed that the type, the number, and the sequence of the apparatuses constituting the mail preparation line are exclusively referred to by way of example and can in many ways be varied and adapted to particular uses. Arrow 11 indicates the direction in which sheets, envelopes, and enclosures are processed into items to b mailed proceeds.

It is observed that the use of a burster 5 in principle implies printing on continuous forms. Naturally it is also possible to use a printer that works with loose sheets, such as most laser printers. In that cas the burster 5 may be omitted.

The information about the documents to be produced is generated by the data processor 1 in the form of printing instructions for the printer 4. A part of the printing instructions is directed to the printing of markings which can be read before or in the collecting station 6 and subsequently could be converted into control instructions for the various mail preparation stations.

The output coming from the data processor 1 is fed to the interface 2 which detects the instructions for controlling the mail preparation stations from this output and converts them into control signals which are passed on to the stations in question. The detected and converted instructions are removed from the output or replaced with instructions for printing a blank space or line or a text, such as a standard headline.

As noted above, the instructions for controlling the mail preparation stations which are converted into control signals, are passed on to the stations 5 - 10. These control signals are to lead to the desired treatment the moment the documents or a set of documents belonging together have reached the station which the instructions relate to. When a number of documents or sets of documents which are to be kept separate are simultaneously present in the mail preparation line, the moment at which the treatm nt in question is to be carried out can be determined extremely reliably by means of the interface 2 and feedback signals returned to it from the stations or using synchronisation signals generated by the interface 2 itself. In the latter case the feedback of signals from the stations 5-10 to the interface 2 may optionally be omitted. It is recommendable, however, at least to provide for technical failure to be monitored and reported to the interface 2 to permit the mail preparation line 3 to be stopped automatically in the case of technical failure.

In some cases it is desired that the printed documents are first removed from the mail preparation line 3 for them to be further processed manually, for instance to be signed. It may also happen that the printed sheets are to be processed in a mail preparation line elsewhere. In such cases it may be preferable to print the instructions for controlling certain mail preparation stations anyway, i.e., to provide certain optically visible and readable markings on the documents. To this end the instructions in question can be added to the output. This can be done by adding those instructions to the output in the data processor 1. This may also be done at the interface 2, to which end it may be provided with a separate input. It is preferable to provide such an input not just for this purpose, but also for optionally coupling additional processing instructions to the output, for instance standard instructions relating to the preparation of a batch of items to be mail d.

Fig. 2 shows one of the possible variants of the apparatus according to Fig. 1, like parts b ing desig-

nated by lik reference numerals in both Figures. Accordingly, a data processor 1 is provided in which information for preparing a plurality of documents is stored, which information partly consists of printing instructions and partly of instructions for the assembly of sets of documents. The instructions referred to are passed on to an interface 2, which in turn is capable of separating from the output at least a part of the instructions for assembling sets of documents or for controlling one or a plurality of the mail preparation stations 5 - 10. As in the case of the embodiment according to Fig. 1, the printing instructions are passed on from the interface 2 to the printing apparatus 4. The separated instructions for controlling the mail preparation stations are passed on by the interface 2 to a control unit 12 which feeds the instructions to the mail preparation stations concerned. Such an embodiment of the apparatus may for instance be advantageous when a known apparatus is to be adapted in which the control unit 12 originally received its instructions from a reading apparatus which detected the markings provided on the documents by the printer.

To obtain a set of documents, as shown in Figs. 1 and 2, a collecting station 6 may be arranged in the mail preparation line 3 directly after the printer 4 or, in the case of continuous paper, after the burster 5. Thus the assembly of a set of documents can be accomplished without printing the corresponding markings on the separate documents by converting the corresponding instructions directly into control signals in accordance with the present invention. When the set comprises a letter to be signed, for instance, it may to that end be removed from the mail preparation line by a corresponding control action in the collecting station or any other successive mail preparation station. When afterwards the set is to re-enter the mail preparation line or another mail preparation line, it is preferable to have the printer referred to above print further preparation instructions on the documents in the form of markings. In that case, therefore, a part of the instructions is directly converted into control signals and another part into markings. When in such a case an apparatus according to Fig. 2 is used, a control unit 12 may be provided which can be fed with information by the interface 2 and by a reading apparatus (not shown). Then all the desired treatments can be carried out with a minimum of markings being printed on the documents.

It will be clear that many modifications and variants will readily occur to a person skilled in the art without departure from the invention. As already noted, the mail preparation line may comprise any desired number of parts of any desired type arranged in any desired sequence. Further, each of the arrows designating the flow of information betw en the various parts of the apparatus is provided with arrowh ads, at its two ends, to indicate that fe dback signals can be g nerated so as to obtain optimum control of the apparatus. Such feedback signals may comprise all kinds of information, such as the completion of a certain process step, the passage of a document or set of documents, the report of technical failure, etc.

Further, in the drawings the interface is invariably represented as a separate unit. It will be clear that the interface can also be accommodated in the housing of the printer or in the same housing as the data processor or the control unit which in turn may be accommodated in another housing, such as that of the printer. In other words, the block units shown in the drawings need not be seen as material units. In fact, all units can in principle be accommodated in one single housing.

Claims

1. A method of preparing an item to be mailed using a printer (4) for printing a main document, a line of mail preparation stations comprising an inserter station (7), a data processor (1) and an interface (2) connected between the data processor (1) and the printer (4) said method comprising the steps of sending printing instructions from the data processor (1) to the interface (2), said printing instructions comprising instructions for printing markings on the document, which markings can be read and subsequently converted into control instructions for controlling the mail preparation stations, using the interface (2) for detecting the instructions for printing the markings, for converting at least a part of the detected instructions into control signals and for modifying at least said part of the detected printing instructions, supplying the control signals to the mail preparation stations, and sending the modified printing instructions to the printer, **characterized in that** the modification of said printing instructions consists of replacing at least said part of the detected instructions with or processing at least said part of the detected instructions into instructions for printing a blank space or standard text not to be used for controlling the mail processing stations, the main document is fed directly from the printer (4) to one of the mail preparation stations and the supply of the control signals to the mail preparation stations is carried out in accordance with the printing of the main document.

2. A meth d according to claim 1, characterized in that the modified instructions comprise, printing instructions which amount to at least one line or a part thereof being left blank.

3. A method according to claim 1, characterized in

that the detected instructions are processed in such a way that the printer (4) does not recognize the processed instructions as printing instructions.

4. A method according to claim 1, characterized in that the detected printing instructions are partly removed or processed into instructions that do not effect any printing and partly passed on to the printer (4) in unmodified form to effect the printing of one or more markings.

5. A method according to claim 1, characterized in that the interface (2) generates separate information streams to the various mail preparation stations (4-10).

6. A method according to claim 5, characterized in that the interface (2) is further fed with signals from the mail preparation stations (4-10), which enables the control of said stations and the output of the data processor (1) to be regulated depending on the course of the treatments in one or more of said stations (4-10).

7. A method according to claim 5 or 6, characterized in that at the interface (2) additional information is added to the output.

8. A system for preparing an item to be mailed, comprising a printer (4) and a mail preparation line comprising an inserter station (7), a data processor (1) and an interface (2) connected between the printer (4) and the data processor (1), the system being arranged for passing printing instructions including instructions for printing markings readable and convertable into control instructions for controlling stations of the mail preparation line from the data processor (1) to the interface (2), the interface (2) being arranged for detecting the instructions for printing the markings, for converting at least a part of the detected instructions into control signals and for modifying at least said part of the detected printing instructions into modified printing instructions, for supplying the control signals to the mail preparation stations, and for sending the modified printing instructions to the printer, **characterized in that** the interface (2) is arranged for carrying out the modification by replacing at least said part of the detected instructions with or processing at least said part of the detected instructions into instructions for printing a blank space or standard text not to be used for controlling the mail processing stations, and for carrying out the supplying of th control signals to the mail preparation stations in accordance with the printing of the main document, and the printer (4) is included in the mail preparation line for directly feeding a main document from the printer (4) to a succeeding station of the mail preparation line.

9. Apparatus according to claim 8, characterized in that the interface (2) comprises further input means for instructions.

Patentansprüche

1. Verfahren zur Vorbereitung einer Postsendung unter Verwendung eines Druckers (4) zum Drucken eines Hauptdokumentes, einer Linie von Postverarbeitungsstationen, die eine Einfügestation (7) enthalten, eines Datenprozessors (1) und einer Schnittstelle (2), die den Datenprozessor (1) und den Drucker (4) verbindet, bei dem die Druckanweisungen vom Datenprozessor (1) zur Schnittstelle (2) gesendet werden, die Druckanweisungen Anweisungen zum Drucken von Markierungen auf das Dokument aufweisen, die Markierungen gelesen und nacheinander in Steueranweisungen zur Steuerung der Postvorbereitungsstationen konvertiert werden können, die Schnittstelle (2) zum Empfang der Anweisungen zum Drucken der Markierungen, zum Konvertieren von mindestens einem Teil der empfangen n Anweisungen in Steuersignale und zur Modifizierung von mindestens einem Teil der empfangenen Druckanweisungen verwendet wird, die Postvorbereitungsstationen mit den Steuersignalen versorgt werden und die modifizierten Druckanweisungen zum Drucker gesendet werden,
dadurch gekennzeichnet,
daß die Modifizierung der Druckanw isungen durch Ersetzen oder Umwandlung zum Mindesten des genannten Teils der ermittelten Anweisungen in Anweisungen zum Drucken eines freien Bereichs oder eines Standardtextes, die nicht zur Steuerung der Postverarbeitungsstationen verwendet werden, das Hauptdokument vom Drucker (4) direkt einer der Postvorbereitungsstationen zugeführt wird und die Versorgung der Postvorbereitungsstationen mit Steuersignalen in Abstimmung mit dem Druck des Hauptdokuments erfolgt.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die modifizierten Anweisungen Druckanw isungen enthalten, die bedeuten, eine Zeile oder einen Teil davon freizulassen.

3. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß di empfangen n Anweisungen so bearbeitet werden, daß der Drucker (4) die bearbeiteten Anweisungen nicht als Druckanweisun-

gen erkennt.

4. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die empfangenen Druckanweisungen teilweise entfernt oder in Anweisungen umgewandelt werden, die keinen Druck bewirken, und teilweise zum Drucker (4) in unmodifizierter Form weitergeleitet werden, um den Druck eines oder mehrerer Markierungen zu bewirken.

5. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Schnittstelle (2) gesonderte Informationsströme erzeugt und zu den verschiedenen Postvorbereitungsstationen (4-10) schickt.

6. Verfahren nach Anspruch 5, dadurch gekennzeichnet, daß die Schnittstelle (2) von den Postvorbereitungsstationen (4-10) mit Signalen versorgt wird, welche die Steuerung der Postverarbeitungsstationen und die Regulierung der Ausgabe des Datenprozessors (1) in Abhängigkeit vom Bearbeitungsverlauf in einer oder mehreren Postvorbereitungsstationen (4-10) gestatten.

7. Verfahren nach Anspruch 5 oder 6, dadurch gekennzeichnet, daß an der Schnittstelle (2) zusätzliche Informationen zur Ausgabe hinzugefügt werden.

8. System zur Vorbereitung einer Postsendung, bestehend aus einem Drucker (4) und einer Postvorbereitungslinie, die eine Einfügestation (7), einen Datenprozessor (1) und eine den Drucker (4) und den Datenprozessor (1) verbindende Schnittstelle (2) enthält, wobei das System eingerichtet ist zur Weiterleitung der Druckanweisungen, einschließlich der Anweisungen zum Drucken von lesbaren und in Steuersignale für die Steuerungsstationen der Postvorbereitungslinie konvertierbaren Markierungen, vom Datenprozessor (1) zu der Schnittstelle (2), wobei die Schnittstelle (2) eingerichtet ist zum Empfang der Anweisungen zum Drucken der Markierungen, zum Konvertieren von mindestens einem Teil der empfangenen Anweisungen in Steuerungssignale und zur Modifizierung des Teils der empfangenen Anweisungen in modifizierte Druckanweisungen, zur Versorgung der Postvorbereitungsstationen mit den Steuersignalen und zum Senden der modifizierten Druckanweisungen zum Drucker,
dadurch gekennzeichnet,
daß die Schnittstelle (2) eingerichtet ist zum Ausführen der Modifizierung durch Ersetzen zum Mindesten des genannten Teils der empfangenen Anweisungen durch Umwandlung zum Mindesten des genannten Teils der empfangenen Anweisungen in Anweisungen zum Drucken eines freien Bereichs oder eines Standardtextes, die nicht zur Steuerung der Postverarbeitungsstationen verwendet werden, und zur Durchführung der Versorgung der Postvorbereitungsstationen mit Steuersignalen in Abstimmung mit dem Druck des Hauptdokumentes, und die Postvorbereitungslinie den Drucker (4) zur direkten Zuführung eines Hauptdokumentes vom Drucker (4) zu einer nachfolgenden Station der Postvorbereitungslinie umfaßt.

9. Vorrichtung nach Anspruch 8, dadurch gekennzeichnet, daß die Schnittstelle (2) zusätzlich Eingabemittel für Anweisungen enthält.

Revendications

1. Procédé pour préparer un article à expédier par la poste, utilisant une machine à imprimer (4) pour imprimer un document principal, une ligne de postes de préparation du courrier comprenant un poste d'insertion (7), un processeur de données (1) et une interface (2) connectée entre le processeur de données (1) et la machine à imprimer (4), ledit procédé comprenant les étapes d'adresser des instructions d'impression du processeur de données (1) vers l'interface (2), lesdites instructions d'impression comprenant des instructions pour imprimer des marques sur le document, lesquelles marques peuvent être lues et, subséquemment, converties en instructions de commande pour commander les postes de préparation du courrier, d'utiliser l'interface (2) pour détecter les instructions pour imprimer les marques, pour convertir au moins une partie des instructions détectées en signaux de commande et pour modifier au moins ladite partie des instructions d'impression détectées, de fournir les signaux de commande aux postes de préparation du courrier, et d'envoyer les instructions d'impression modifiées à la machine d'impression,
caractérisé en ce que la modification desdites instructions d'impression consiste à remplacer au moins ladite partie des instructions détectées par ou à traiter au moins ladite partie des instructions détectées en des instructions pour imprimer un espace blanc ou un texte standard à ne pas utiliser pour commander les postes de traitement du courrier, le document principal est amené directement de la machine d'impression (4) vers l'un des postes de préparation du courrier et l'envoi des signaux de commande v rs les postes de préparation du courrier est mis en oeuvre selon l'impression du document principal.

2. Procédé selon la revendication 1,

caractérisé en ce que les instructions modifiées comprennent des instructions d'impression qui équivalent à au moins une ligne ou une partie de celle-ci laissée blanche.

3. Procédé selon la revendication 1, caractérisé en ce que les instructions détectées sont traitées de telle façon que la machine à imprimer (4) ne reconnaisse pas les instructions traitées en tant qu'instructions d'impression.

4. Procédé selon la revendication 1, caractérisé en ce que les instructions d'impression détectées sont partiellement retirées ou traitées en instructions qui n'effectuent pas une quelconque impression et passent sur la machine d'impression (4) dans une forme inchangée pour réaliser l'impression d'une ou plusieurs marques.

5. Procédé selon la revendication 1, caractérisé en ce que l'interface (2) engendre des flots d'informations, séparés aux différents poste de préparation du courrier (4-10).

6. Procédé selon la revendication 5, caractérisé en ce que l'interface (2) est alimentée, de plus, en signaux des postes de préparation du courrier (4-10), ce qui permet la commande desdits postes et la régulation de la sortie du processeur de données (1) selon la course des traitements dans l'un ou plusieurs desdits postes (4-10).

7. Procédé selon la revendication 5 ou 6, caractérisé en ce que, à l'interface (2), des informations additionnelles sont ajoutées à la sortie.

8. Système pour préparer un article destiné à être expédié par la poste, comprenant une machine d'impression (4) et une ligne de préparation du courrier comprenant un poste d'insertion (7), un processeur de données (1) et une interface (2) connectée entre la machine d'impression (4) et le processeur de données (1), le système étant agencé pour passer des instructions d'impression incluant des instructions pour imprimer des marques lisibles et convertibles en des instructions de commande pour commander des postes de la ligne de préparation du courrier à partir du processeur de données (1) vers l'interface (2), l'interface (2) étant agencée pour détecter les instructions pour imprimer les marques, pour convertir au moins une partie des instructions détectées en signaux de commande et pour modifier au moins ladite partie des instructions d'impression détectées n instructions d'impression modifiées, pour fournir les signaux de commande aux postes de préparation du courrier, et pour envoyer les instructions d'impression modifiées à la machine d'impression, caractérisé en ce que l'interface (2) est agencée pour mettre en oeuvre la modification, en remplaçant au moins ladite partie des instructions détectées par ou en traitant au moins ladite partie des instructions détectées en des instructions pour imprimer un espace blanc ou un texte standard à ne pas utiliser pour commander les postes de traitement du courrier, et pour mettre en oeuvre l'envoi de signaux de commande aux postes de préparation du courrier selon l'impression du document principal, et la machine d'impression (4) est incluse dans la ligne de préparation du courrier pour alimenter directement un document principal à partir de la machine d'impression (4) vers un poste suivant de la ligne de préparation du courrier.

9. Appareil selon la revendication 8, caractérisé en ce que l'interface (2) comprend, de plus, des moyens d'entrée pour des instructions.

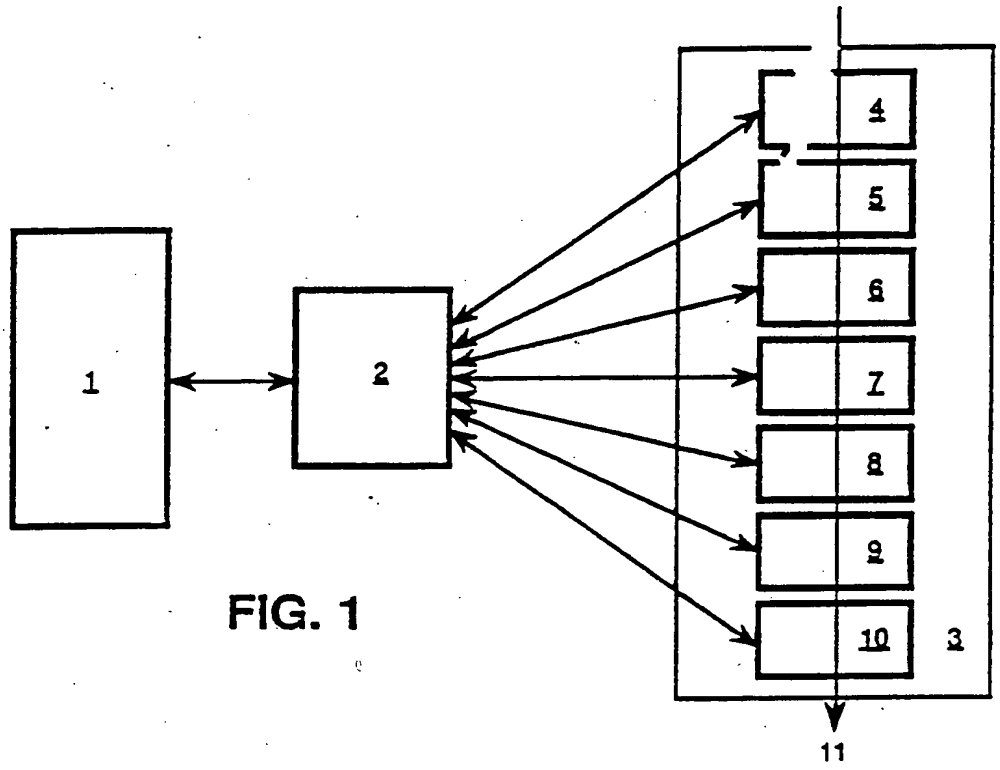

FIG. 1

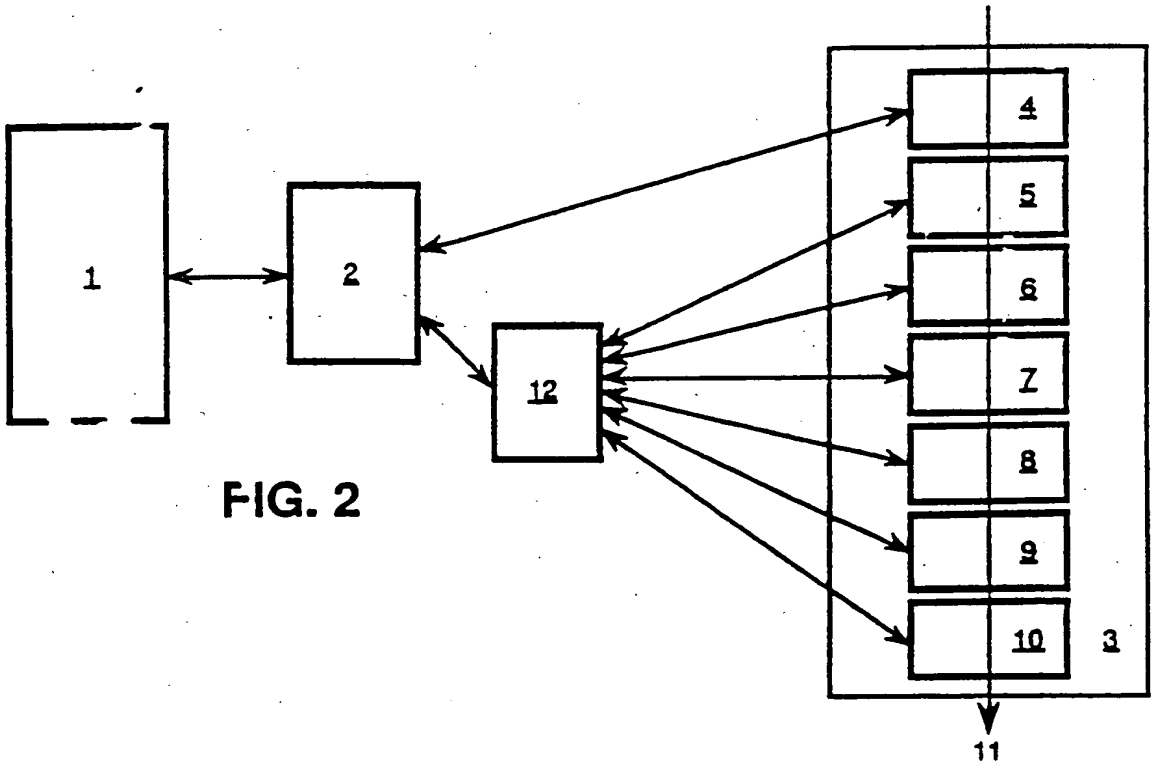

FIG. 2